THE JOURNAL OF HORTICULTURAL SCIENCE

BOARD OF EDITORS

Editor:

G. E. TIDBURY, B.Sc., A.R.C.S., A.I.C.T.A., C.Biol., F.I.Biol., B.S. of Z., East Malling Research Station, Maidstone, Kent ME19 6BJ.

Associate Editors:

G. P. CHAPMAN, Ph.D., Wye College, Nr. Ashford, Kent.

K. E. Cockshull, B.Sc., Ph.D., Glasshouse Crops Research Institute, Worthing Road, Rustington, Littlehampton, Sussex.

B. H. Howard, B.Sc., Ph.D., East Malling Research Station, Maidstone, Kent ME19 6BJ. S. H. Mantell, B.Sc., M.Sc., D.I.C., D.T.A., Ph.D., Wye College, Nr. Ashford, Kent. J. D. Quinlan, B.Sc., Ph.D., East Malling Research Station, Maidstone, Kent ME19 6BJ.

A. R. REES, B.Sc., D.Sc., C.Biol., F.I.Biol., Glasshouse Crops Research Institute, Worthing Road, Rustington, Littlehampton, Sussex.

T. J. RIGGS, B.Sc., Ph.D., National Vegetable Research Station, Wellesbourne, Warwick. P. J. Salter, D.Sc., C.Biol., F.I.Biol., National Vegetable Research Station, Wellesbourne,

W. W. Schwabe, D.I.C., Ph.D., D.Sc., Wye College, Nr. Ashford, Kent.

I. W. SELMAN, D.Sc., Wye College, Nr. Ashford, Kent.

R. O. SHARPLES, B.Sc., Ph.D., East Malling Research Station, Maidstone, Kent ME19 6BJ. C. E. TAYLOR, C.B.E., B.Sc., Ph.D., F.R.S.E., C.Biol., F.I.Biol., Scottish Crop Research Institute, Invergowrie, Dundee, Angus.

H. D. TINDALL, M.B.E, M.Sc., F.L.S., C.Biol., F.I.Biol., C.I.Agr.E., N.D.H., Silsoe College, Department of Agricultural Engineering, Silsoe, Bedford, MK45 4DT.

K. J. TREHARNE, Ph.D., Long Ashton Research Station, University of Bristol, BS18 9AF. L. D. Tukey, B.S., M.S., Ph.D., Department of Horticulture, 103 Tyson Building, The Pennsylvania State University, University Park, PA 16802, USA.
D. Vince-Prue, Ph.D., M.S., N.D.H., Glasshouse Crops Research Institute, Worthing Road,

Rustington, Littlehampton, Sussex.

P. D. WAISTER, B.Sc., Ph.D., Scottish Crop Research Institute, Invergowrie, Dundee, Angus. S. J. Wertheim, Dr. Ir., Proefstation voor de Fruitteelt, Brugstraat 51, 4475 An Wilhelminadorp, The Netherlands.

PUBLICATION COMMITTEE

W. W. SCHWABE, D.I.C., Ph.D., D.Sc. (Chairman) J. K. A. Bleasdale, B.Sc., Ph.D., C.Biol., F.I.Biol.

R. E. BUTTERS, B.Sc.(Hort.), N.D.H.

I. J. GRAHAM-BRYCE, B.A., M.A., B.Sc., D.Phil.

O. V. S. HEATH, D.Sc., F.R.S. G. G. HENSHAW, B.Sc., Ph.D.

J. M. Hirst, D.Sc., Ph.D., F.R.S.

J. P. Hudson, C.B.E., M.B.E. (Mil.), G.M., M.Sc., Ph.D., N.D.H., C.Biol., F.I.Biol., V.M.H. G. Hussey, Ph.D.

G. F. PEGG, B.Sc., M.Sc., Ph.D.

D. H. PITT

A. F. Posnette, C.B.E., Sc.D., Ph.D., A.I.C.T.A., C.Biol., F.I.Biol., F.R.S., V.M.H.

D. RUDD-JONES, C.B.E., M.A., Ph.D., C.Biol., F.I.Biol.

C. E. TAYLOR, C.B.E., B.Sc., Ph.D., F.R.S.E., C.Biol., F.I.Biol. G. E. TIDBURY, B.Sc., A.R.C.S., A.I.C.T.A., C.Biol., F.I.Biol., B.S. of Z. H. D. TINDALL, M.B.E., M.Sc., F.L.S., C.Biol., F.I.Biol., C.I.Agr.E., N.D.H.

J. TURNBULL, B.Sc.

N. WEATHERITT, N.D.H.

R. L. Oxley, M.B.I.M. (Secretary)

VOL. 60

HEADLEY BROTHERS LTD The Invicta Press, Ashford, Kent England

PRINTED IN GREAT BRITAIN BY HEADLEY BROTHERS LTD THE INVICTA PRESS ASHFORD KENT AND LONDON

TABLE OF CONTENTS

THE JOURNAL OF HORTICULTURAL SCIENCE, VOL. 60 No. 1 (January 1985)

D. W. McKenzie and M. Kiddle: Incidence of natural mutations in the skin of Sturmer Pippin apples	1-6
D. W. McKenzie: Apple rootstock trials: Golden Delicious on eight semi-dwarfing rootstocks in Hawke's Bay, New Zealand	7–11
T. B. Koen and K. M. Jones: A model of ethephon thinning of Golden Delicious apples	13–19
K. M. Jones and T. B. Koen: Temperature effects on ethephon thinning of apples	21–24
R. R. WILLIAMS and P. Brain: Honey-bee activity when visiting flowers of the apple cultivars Cox's Orange Pippin and Golden Delicious	25–28
T. R. ROPER, D. J. WEBER and W. R. ANDERSEN: Impact of etaconazole and benomyl on powdery mildew, leaf characteristics, growth and yield of Rome Beauty apple trees	29–32
M. A. EASTERBROOK, M. G. SOLOMON and J. D. FITZGERALD: Control of Blastobasis decolorella (Lepidoptera: Blastobasidae), a new pest of apple	33–36
M. A. Perring and D. A. Holland: The effect of orchard factors on the chemical composition of apples. V. Year-to-year variations in the effects of NPK fertilizers and sward treatment on fruit composition	37–46
E. Garnier and A. Berger: Testing water potential in peach trees as an indicator of water stress	47–56
B. Chung: The effects of sowing time and plant density on the once-over harvest yields of broccoli	57–64
D. Gray, Susan Hulbert and Karen J. Senior: The effects of seed position, harvest date and drying conditions on seed yield and subsequent performance of cabbage	65–75
D. Gray and Joyce R. A. Steckel: Variation in flowering time as a factor influencing variability in seedling size in the subsequent carrot (Daucus carota L.) crop	77–81
D. J. McGeary: The effects of plant density on the shape, size, uniformity, soluble solids content and yield of onions suitable for	02.07
pickling	83–87
stomatal resistance and yield in tomato	89–92
species: Centaurea junoniana Svent. (Compositae)	93–97
regeneration from juvenile and mature Quercus robur, L	99–106
H. I. M. V. VITHANAGE and D. McE. ALEXANDER: Synchronous flowering and pollen storage techniques as aids to artificial hybridization in pistachio (<i>Pistacia</i> spp.)	107–113
A. R. SEPASKHAH, M. MAFTOUN and N. KARIMIAN: Growth and chemical composition of pistachio as affected by salinity and applied iron	115–121
B. M. EL-ZEFTAWI, I. R. THORNTON and R. H. LLOYD: Evaluation of some new Valencia orange selections in Sunraysia, Australia	123-135
S. NAGY, M. MARSHALL, W. F. WARDOWSKI and R. L. ROUSEFF: Post-harvest creasing of Robinson tangerines as affected by harvest date,	137–140

No. 2 (April 1985)

O. P. Jones, R. H. Zimmerman, Ingrid M. Fordham and Margaret E. Hopgood: Propagation <i>in vitro</i> of some dwarf apple trees	141–144
B. H. HOWARD, R. S. HARRISON-MURRAY and S. B. ARJYAL: Responses of apple summer cuttings to severity of stockplant pruning and to stem	145–152
blanching	143-132
B. H. Howard: The contribution to rooting in leafless winter plum cuttings of IBA applied to the epidermis	153–159
B. H. Howard: Factors affecting the response of leafless winter cuttings of apple and plum to IBA applied in powder formulation	161–168
A. D. Webster, V. Heather Oehl, J. E. Jackson and O. P. Jones: The orchard establishment, growth and precocity of four micropropagated apple scion cultivars	169–180
J. DE V. LÖTTER, D. J. BEUKES and H. W. WEBER: Growth and quality of apples as affected by different irrigation treatments	181–192
A. D. Webster and Linda Andrews: Fruit thinning Victoria plums (<i>Prunus domestica</i> L.): preliminary studies with paclobutrazol	193–199
S. M. Smith: A comparison of two carbon dioxide removal systems on the quality of Cox's Orange Pippin apples after storage	201–206
S. M. SMITH, D. S. JOHNSON, J. CHESWORTH and J. MORI: Short-term storage of Discovery apples	207–214
H. Wainwright and A. W. Flegmann: The micropropagation of gooseberry (<i>Ribes uva-crispa</i> L.): I. Establishment <i>in vitro</i>	215–221
G. F. Collier, Kathleen Phelps and Valerie C. Huntington: The effects of soil-applied aluminium sulphate, soil pH and soil potassium on pepper spot development in two winter white cabbage cultivars	223–231
P. A. Costigan: A survey of nutrient concentrations and early shoot and root growth of drilled lettuce in twenty-one commercial sowings in one year	233–243
J. ROUCHAUD, C. MOONS and J. A. MEYER: The effects of selected herbicide and fungicide treatments on the carotenes and xanthophylls in lettuce	245–249
B. D. Dowker, Lesley Currah, J. F. Horobin, J. C. Jackson and G. J. Faulkner: Seed production of an F ₁ hybrid onion in polyethylene	
tunnels	251-256
B. LIBERT and C. CREED: Oxalate content of seventy-eight rhubarb cultivars and its relation to some other characters	257–261
F. Parivar, J. E. Preece and G. D. Coorts: The effects of ancymidol concentrations and application methods on cultivars of Mid-Century	
Hybrid lily T. L. Ettinger and J. E. Preece: Aseptic micropropagation of Rhododendron P.J.M. hybrids	263–268
Sharon Klass, R. L. Bingham, Lisa Finkner-Templemen and P. Felker: Optimizing the environment for rooting cuttings of highly productive	269–274
clones of <i>Prosopis alba</i> (mesquite/algarrobo)	275–284

C. CHONG and EC. Pua: Carbon nutrition of Ottawa 3 apple rootstock during stages of <i>in vitro</i> propagation	285–290
J. ROUCHAUD, C. Moons and J. A. MEYER: Cultivar differences in the influence of harvest date and cold storage on the free sugars and acids	291–296
S. M. SMITH and J. R. Stow: Variation in storage and eating quality of clones of Cox's Orange Pippin apples	297–290
S. M. SMITH, D. S. JOHNSON and JULIE MORI: The effect of the growth regulator ethephon on the quality of Discovery apples during simulated marketing	305-310
P. P. S. SCHMID and W. FEUCHT: Compatibility in <i>Prunus avium/Prunus cerasus</i> graftings during the initial phase. III. Isoelectrofocusing of proteins and acid phosphatases during union formation	311–318
A. T. Jones, D. J. F. Brown and M. J. MITCHELL: Nematode-borne virus problems in Glen Clova red raspberry in the United Kingdom	319–323
P. Crisp, A. R. Gray, H. James, S. J. Ives and S. M. Angell: Improving purple sprouting broccoli by breeding	325–333
H. S. Paris, T. G. McCollum, H. Nerson, D. J. Cantliffe and Z. Karchi: Breeding of concentrated-yield musk melons	335–339
G. E. L. Morris and W. G. Tucker: A study of the components of growth of the spring-sown onion and their relationships with meteorological data	341–351
G. Pombo, M. D. Orzolek, L. D. Tukey and T. P. Pyzik: The effect of paclobutrazol, daminozide, glyphosate and 2,4-D in gel on the emergence and growth of germinated tomato seeds	353–357
R. G. Hurd and C. J. Graves: Some effects of air and root temperatures on the yield and quality of glasshouse tomatoes	359–371
S. Varis and A. T. George: The influence of mineral nutrition on fruit yield, seed yield and quality in tomato	373–376
H. Insley and G. P. Buckley: The influence of desiccation and root pruning on the survival and growth of broadleaved seedlings	377–387
R. Y. N. Eng, M. J. Tsujita and B. Grodzinski: The effects of supplementary HPS lighting and carbon dioxide enrichment on the vegetative growth, nutritional status and flowering characteristics of <i>Chrysan</i> -	
themum morifolium Ramat	389–395
H. WAINWRIGHT and A. C. HARWOOD: <i>In vitro</i> organogenesis and plant regeneration of <i>Cyclamen persicum</i> Mill. using seedling tissue	397–403
A. BAR-TSUR, J. RUDICH and B. BRAVDO: Photosynthesis, transpiration and stomatal resistance to gas exchange in tomato plants under high temperatures	405–410
S. M. LIONAKIS and W. W. SCHWABE: Some effects of mineral nutrient deficiencies on the growth of <i>Actinidia chinensis</i> Planch.	411–422
M. BARGHCHI and P. G. ALDERSON: <i>In vitro</i> propagation of <i>Pistacia vera</i> L. and the commercial cultivars Ohadi and Kalleghochi	423–430
R. R. B. Leakey and H. R. S. Mohammed: The effects of stem length on root initiation in sequential single-node cuttings of <i>Triplochiton</i>	Allegare
scleroxylon K. Schum	431–437

No. 4 (October 1985)

Z. AL BARAZI and W. W. SCHWABE: Studies on possible internal factors involved in determining ease of rooting in cuttings of <i>Pistacia vera</i> and <i>Prunus avium</i> cvs Colt and F12/1	439–445
D. C. Elfving: Comparison of cytokinin and apical-dominance-inducing growth regulators for lateral-branch induction in nursery and orchard	115 151
apple trees	447–454
LIZ COPAS, R. R. WILLIAMS and GILLIAN M. ARNOLD: The effect of paclobutrazol on the growth of cider apple trees, cv Michelin, when applied to orchard alleyway swards to suppress grass growth	455–458
N. J. Bostanian and C. Vincent: Pre-bloom pesticide treatments for phytophagous mite control in apple orchards	459–463
R. E. BYERS, C. G. LYONS, JR, K. S. YODER, J. A. BARDEN and R. W. YOUNG: Peach and apple thinning by shading and photosynthetic inhibition	465–472
D. C. Morgan C. J. Stanley and I. J. Warrington: The effects of simulated daylight and shade-light on vegetative and reproductive	
growth in kiwifruit and grapevine	473-484
H. WAINWRIGHT and A. W. FLEGMANN: The micropropagation of goose- berry (Ribes uva-crispa L.): II. In vitro proliferation and in vivo	405 401
establishment	485–491
MARGARETA WELANDER: In vitro culture of raspberry (Rubus ideaus) for mass propagation	493–499
A. RAMINA, P. TONUTTI and T. Tosi: The effect of paclobutrazol on strawberry growth and fruiting.	501-506
G. SLACK and D. W. HAND: The effect of winter and summer CO ₂ enrichment on the growth and fruit yield of glasshouse cucumber	507-516
D. L. STACEY, I. J. WYATT and R. J. CHAMBERS: The effect of glasshouse red spider mite damage on the yield of tomatoes	517–523
INGRID E. EVALDSSON and N. T. WELANDER: The effects of medium composition on <i>in vitro</i> propagation and <i>in vivo</i> growth of <i>Cordyline</i>	
terminalis cv Atoom	525-530
G. R. Hanks: Factors affecting yields of adventitious bulbils during propagation of <i>Narcissus</i> by the twin-scaling technique	531–543
J. P. Bower and L. J. Van Lelyveld: The effect of stress history and container ventilation on avocado fruit polyphenol oxidase activity	545 547
SHANTHA KRISHNAMURTHY and C. G. KUSHALAPPA: Studies on the shelf life	545–547
and quality of Robusta bananas as affected by post-harvest treatments	549–556
M. O. Akoroda: Morphotype diversity in Nigerian land-races of	
A. Shaked and D. Hasdai: Organic acids in the juice of developing	557–562
nucellar and old-line clone Shamouti oranges	563-568
Erratum	

and the second of the second of the second of